

Mineral Industry Surveys

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MANGANESE IN MAY 2004

In May, reported consumption of manganese ore containing 35% or more manganese, exclusive of that consumed at iron and steel plants, was 29,600 metric tons (t), which was a 25% increase from that of April 2004, according to the U.S. Geological Survey. This figure increases to 32,000 t when estimates for annual respondents are added on the basis of 2003 data. Corresponding industry stocks of ore at the end of the month were 158,000 t, which includes an estimate for annual respondents on the basis of 2003 data. (Data for the most recent 13 months are plotted in the graph on page 2.)

Foreign trade data for May will appear in a subsequent report. The data for April 2004 tabulated in this report indicate that the total exports, on a manganese content basis, decreased by 84% from those of the previous month, owing to a significant decrease in manganese ore exports. Manganese imports, on a manganese content basis, decreased by 5%, compared with those of March based on decreases in manganese ore and dioxide imports.

Update

On April 22, the U.S. Environmental Protection Agency (EPA) issued final national emission standards for hazardous air pollutants (HAPs) for iron and steel foundries. One of the major metallic HAPs from these facilities is manganese. EPA established metal HAP emission limits for the following specific sources at iron and steel foundries: melting furnaces, scrap preheaters, and pouring areas or stations. The limits will either be particulate matter (PM) used as a surrogate limit for the metal HAPs or total metal HAP as an alternate to the PM limits. Emission limits vary depending on the emission source and

whether the source is existing or new—the lowest for cupola and electric arc metal melting furnaces, and pouring areas or stations at new iron and steel foundries [0.002 grains per dry standard cubic foot (gr/dscf) of PM or 0.0002 gr/dscf of total metal HAP] to the highest for pouring areas or stations at existing iron and steel foundries (0.010 gr/dscf of PM or 0.0008 gr/dscf of total metal HAP) (U.S. Environmental Protection Agency, 2004).

In July, it was reported that Yumen Tianmao began construction of a 10,200-metric-ton-per-year silicomanganese production line in Yumen, Gansu Province. Pilot testing of the plant is expected to start in mid-August (Precious & Minor Metals Monthly, 2004).

On August 2, The Defense National Stockpile Center issued amendment no. 7 to Solicitation of Offers DLA—Manganese Metallurgical and Chemical and Dioxide Synthetic Battery Grades—002 to make available 1,237 t of synthetic battery-grade manganese dioxide and 4,090 t of natural battery-grade manganese ore (Defense National Stockpile Center, 2004).

References Cited

- Defense National Stockpile Center, 2004, Stockpile issues manganese ore amendment: Defense National Stockpile Center, news release DNSC-04-2501, August 2, 1 p.
- Precious & Minor Metals Monthly, 2004, Si-Mn alloy production line starts construction in Gansu: Precious & Minor Metals Monthly, v. 53, July, p. 18.
- U.S. Environmental Protection Agency, 2004, National emission standards for hazardous air pollutants for iron and steel foundries—Final rule: Federal Register, v. 69, no. 78, April 22, p. 21905-21940.

TABLE 1
SELECTED U.S. FOREIGN TRADE IN MANGANESE¹

(Metric tons, manganese content)²

| | Imports for consumption | | | Exports | | |
|---------------|-------------------------|----------------------|----------------------|---------|----------------------|--------|
| | Ore and dioxide | Ferroalloy and metal | Total | Ore | Ferroalloy and metal | Total |
| 2003: | | | | | | |
| April | 6,430 | 37,600 | 44,100 | 335 | 1,400 | 1,730 |
| January-April | 58,000 | 114,000 ^r | 172,000 ^r | 1,010 | 3,940 | 4,940 |
| 2004: | | | | | | |
| January | 13,100 | 37,500 | 50,600 | 653 | 796 | 1,450 |
| February | 20,600 | 33,100 | 53,700 | 1,920 | 745 | 2,660 |
| March | 34,800 | 29,300 ³ | 64,100 | 12,400 | 559 | 13,000 |
| April | 3,720 | 57,300 ³ | 61,000 | 733 | 1,300 | 2,030 |
| Total | 72,200 | 157,000 | 229,000 | 15,800 | 3,400 | 19,100 |

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and for exports from gross weights.

³All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

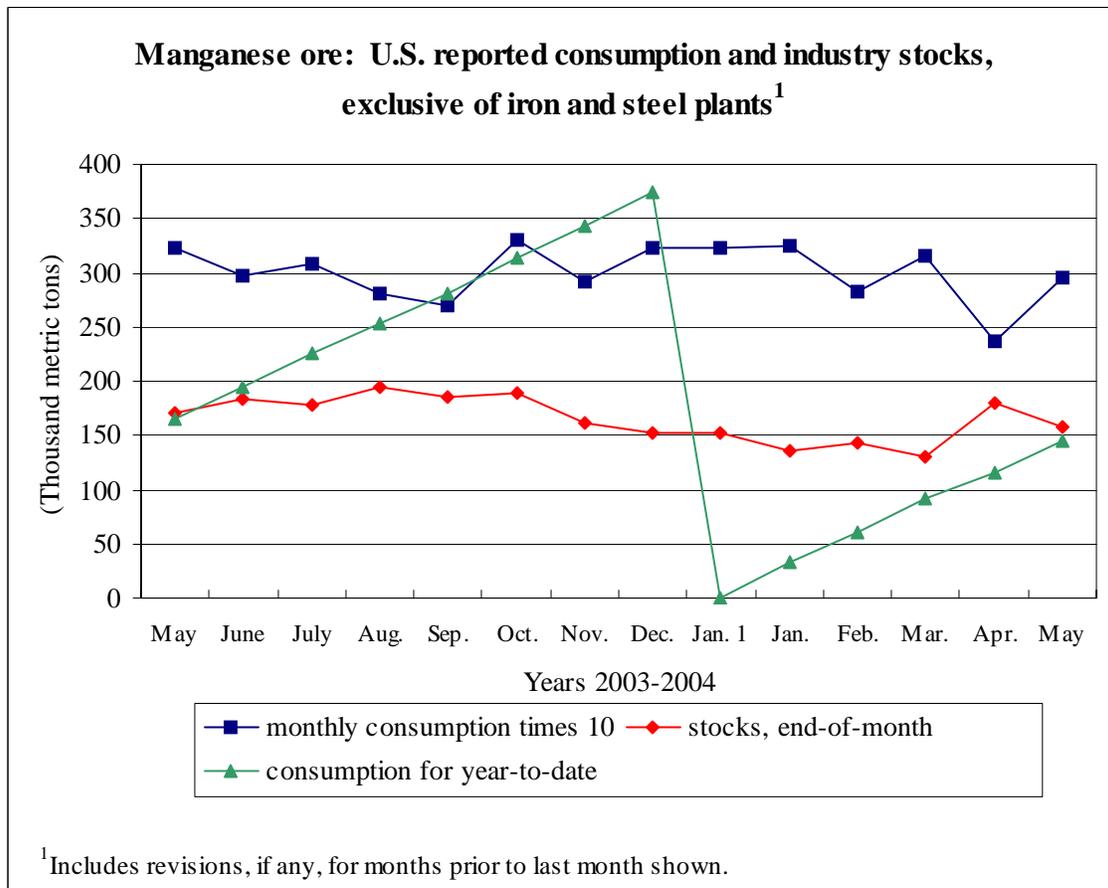


TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN APRIL 2004¹

(Metric tons, unless otherwise specified)

| Source | Gross weight | Mn content | Customs value | Year to date | | |
|------------------------|--------------|------------|---------------|--------------|------------|---------------|
| | | | | Gross weight | Mn content | Customs value |
| Australia | -- | -- | -- | 10,100 | 6,730 | \$5,500,000 |
| Canada | -- | -- | -- | 668 | 552 | 295,000 |
| France | 3,010 | 2,030 | \$2,980,000 | 3,010 | 2,030 | 2,980,000 |
| Georgia | 10,100 | 8,220 | 9,140,000 | 15,300 | 12,200 | 12,000,000 |
| Korea, Republic of | -- | -- | -- | 4,350 | 2,860 | 1,880,000 |
| Mexico | 510 | 334 | 268,000 | 510 | 334 | 268,000 |
| Norway | 3,630 | 2,320 | 3,780,000 | 9,700 | 6,130 | 8,500,000 |
| Romania | 4,050 | 4,050 | 2,730,000 | 18,900 | 14,700 | 14,100,000 |
| Russia | 1,050 | 695 | 1,650,000 | 1,050 | 695 | 1,650,000 |
| South Africa | 17,400 | 11,500 | 15,300,000 | 42,300 | 27,900 | 30,400,000 |
| Ukraine | -- | -- | -- | 18 | 13 | 18,000 |
| United Kingdom | -- | -- | -- | 17 | 13 | 11,700 |
| Total | 39,700 | 29,100 | 35,800,000 | 106,000 | 74,200 | 77,500,000 |
| Total, general imports | 39,700 | 29,100 | 35,800,000 | 106,000 | 74,200 | 77,500,000 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN APRIL 2004¹

(Metric tons, unless otherwise specified)

| Source | Gross weight | Mn content | Customs value | Year to date | | |
|---|--------------|--------------------|---------------|--------------|------------|---------------|
| | | | | Gross weight | Mn content | Customs value |
| Low carbon: | | | | | | |
| China | 473 | 400 | \$436,000 | 1,620 | 1,380 | \$1,440,000 |
| Mexico | -- | -- | -- | 1,220 | 963 | 1,100,000 |
| Norway | 400 | 328 | 521,000 | 1,190 | 974 | 1,230,000 |
| South Africa | 102 | 94 | 144,000 | 465 | 430 | 610,000 |
| Total, low carbon | 975 | 822 | 1,100,000 | 4,500 | 3,740 | 4,380,000 |
| Total, general imports of low carbon | 975 | 822 | 1,100,000 | 4,500 | 3,740 | 4,380,000 |
| Medium carbon, 1%-2% C: | | | | | | |
| China | 1,000 | 807 | 707,000 | 1,840 | 1,490 | 1,290,000 |
| Italy | -- | -- | -- | 11 | 76 | 42,000 |
| Korea, Republic of | -- | -- | -- | 2,500 | 2,000 | 1,450,000 |
| Mexico | 1,000 | 789 | 930,000 | 1,430 | 1,120 | 1,340,000 |
| Netherlands | 757 | 590 | 848,000 | 757 | 590 | 848,000 |
| Norway | 500 | 410 | 446,000 | 3,040 | 2,490 | 2,350,000 |
| Romania | 150 | 113 | 78,500 | 150 | 113 | 78,500 |
| South Africa | 6,020 | 4,850 | 4,980,000 | 17,600 | 14,100 | 13,500,000 |
| Total, m.c., 1%-2% C | 9,430 | 7,550 | 7,990,000 | 27,300 | 22,000 | 20,900,000 |
| Total, general imports of m.c., 1%-2% C | 9,430 | 7,550 | 7,990,000 | 27,300 | 22,000 | 20,900,000 |
| Medium carbon, 2%-4% C, Georgia | 2,700 | 2,700 ² | 2,020,000 | 3,900 | 3,900 | 2,800,000 |
| Total, general imports of m.c., 2%-4% C | 2,700 | 2,700 ² | 2,020,000 | 3,900 | 3,900 | 2,800,000 |
| High carbon: | | | | | | |
| Australia | -- | -- | -- | 5,410 | 4,170 | 2,530,000 |
| Brazil | -- | -- | -- | 3,920 | 3,090 | 1,830,000 |
| Canada | 36 | 27 | 19,600 | 36 | 27 | 19,600 |
| France | 1,300 | 1,010 | 932,000 | 1,300 | 1,010 | 932,000 |
| Norway | -- | -- | -- | 5,890 | 4,590 | 2,670,000 |
| South Africa | 19,100 | 14,200 | 13,200,000 | 40,300 | 30,700 | 24,400,000 |
| Spain | -- | -- | -- | 3,000 | 2,270 | 2,960,000 |
| Total, high carbon | 20,400 | 15,200 | 14,100,000 | 59,800 | 45,800 | 35,300,000 |
| Total, general imports of high carbon | 20,400 | 15,200 | 14,100,000 | 59,800 | 45,800 | 35,300,000 |
| Grand total | 33,500 | 26,300 | 25,300,000 | 95,500 | 75,500 | 63,400,000 |
| Grand total, general imports | 33,500 | 26,300 | 25,300,000 | 95,500 | 75,500 | 63,400,000 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS OF MANGANESE ORE (20% OR MORE Mn) IN APRIL 2004^{1,2}

(Metric tons)

| Source | 20% - 47% Mn | | 47% or more Mn | | Total | |
|---------------|--------------|------------|----------------|------------|--------------|------------|
| | Gross weight | Mn content | Gross weight | Mn content | Gross weight | Mn content |
| Belgium | -- | -- | 18 | 13 | 18 | 13 |
| China | -- | -- | 3,830 | 2,040 | 3,830 | 2,040 |
| Georgia | -- | -- | 21 | 16 | 21 | 16 |
| Mexico | 1,440 | 565 | -- | -- | 1,440 | 565 |
| Total | 1,440 | 565 | 3,870 | 2,070 | 5,310 | 2,630 |
| Year to date: | | | | | | |
| Australia | -- | -- | 17,300 | 9,150 | 17,300 | 9,150 |
| Belgium | -- | -- | 54 | 38 | 54 | 38 |
| China | -- | -- | 3,830 | 2,040 | 3,830 | 2,040 |
| Gabon | 1,000 | 440 | 105,000 | 53,900 | 106,000 | 54,400 |
| Georgia | -- | -- | 21 | 16 | 21 | 16 |
| India | -- | -- | 39 | 35 | 39 | 35 |
| Mexico | 1,440 | 565 | -- | -- | 1,440 | 565 |
| Total | 2,440 | 1,010 | 126,000 | 65,200 | 129,000 | 66,200 |

-- Zero.

¹Quantities for general imports and imports for consumption are identical.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE IN APRIL 2004¹

(Metric tons, gross weight)

| Source | Manganese dioxide | | | |
|------------------------|-------------------|---------------|----------|---------------|
| | Quantity | Year to date | | |
| | | Customs value | Quantity | Customs value |
| Australia | -- | -- | 3,350 | \$4,070,000 |
| Belgium | 55 | \$105,000 | 178 | 343,000 |
| Brazil | 40 | 18,000 | 404 | 247,000 |
| China | 1,720 | 1,730,000 | 4,560 | 4,600,000 |
| Germany | -- | -- | 31 | 71,400 |
| Greece | -- | -- | 288 | 340,000 |
| Japan | 2 | 2,530 | 829 | 992,000 |
| South Africa | -- | -- | 370 | 467,000 |
| Total | 1,820 | 1,850,000 | 10,000 | 11,100,000 |
| Total, general imports | 1,820 | 1,850,000 | 10,000 | 11,100,000 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE METAL IN APRIL 2004¹

(Metric tons)

| Source | Gross weight | Customs value | Year to date | |
|----------------------------------|--------------|---------------|--------------|---------------|
| | | | Gross weight | Customs value |
| Unwrought flake: | | | | |
| China | 300 | \$477,000 | 1,440 | \$1,630,000 |
| South Africa | 590 | 837,000 | 2,480 | 3,360,000 |
| Total | 890 | 1,310,000 | 3,920 | 4,980,000 |
| Unwrought powder: | | | | |
| China | 352 | 511,000 | 884 | 1,100,000 |
| South Africa | 207 | 295,000 | 1,200 | 1,840,000 |
| Total | 559 | 806,000 | 2,080 | 2,940,000 |
| Unwrought, other: | | | | |
| China | -- | -- | 19 | 28,500 |
| Spain | 68 | 113,000 | 170 | 274,000 |
| South Africa | 240 | 348,000 | 860 | 1,190,000 |
| Total | 308 | 461,000 | 1,050 | 1,500,000 |
| Other manganese, wrought: | | | | |
| China | 20 | 35,200 | 185 | 284,000 |
| Japan | -- | -- | 4 | 14,400 |
| India | -- | -- | 8 | 12,000 |
| Spain | 17 | 41,600 | 34 | 80,800 |
| United Kingdom | -- | -- | (2) | 5,100 |
| Total | 37 | 76,800 | 231 | 396,000 |
| Grand total | 1,790 | 2,660,000 | 7,280 | 9,810,000 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than 1/2 unit.

Note: Imports for consumption of metallic manganese waste and scrap totaled 117 tons, of which 104 tons were from Canada and 13 tons were from France, to give a year-to-date total of 400 tons.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF MANGANESE ORE (20% OR MORE Mn), FERROMANGANESE,
SILICOMANGANESE, AND MANGANESE METAL BY COUNTRIES OF DESTINATION IN 2004¹

(Metric tons, gross weight)

| | Manganese ore | | Ferromanganese, 2% or less C | | Silicomanganese | | Manganese metal ² | |
|---------------------|---------------|--------------|---------------------------------|--------------|-----------------|--------------|------------------------------|--------------|
| | April | Year to date | April | Year to date | April | Year to date | April | Year to date |
| Australia | -- | 32 | -- | -- | -- | -- | -- | -- |
| Belgium | -- | -- | -- | -- | -- | -- | 3 | 98 |
| Brazil | -- | 50 | -- | -- | -- | -- | 4 | 5 |
| Canada | 360 | 2,130 | 369 | 1,700 | 18 | 18 | 73 | 386 |
| China | -- | 22,800 | -- | -- | -- | -- | -- | -- |
| Dominican Republic | -- | -- | -- | -- | -- | -- | 14 | 14 |
| Estonia | -- | -- | -- | 54 | -- | -- | -- | -- |
| France | -- | -- | -- | -- | 10 | 12 | -- | (3) |
| Germany | 223 | 2,350 | -- | -- | -- | -- | -- | (3) |
| Hong Kong | -- | 23 | -- | -- | -- | -- | (3) | (3) |
| Indonesia | -- | 26 | -- | -- | -- | 5 | -- | -- |
| Israel | 118 | 118 | -- | -- | -- | -- | -- | -- |
| Italy | -- | 74 | -- | -- | -- | -- | -- | 29 |
| Japan | -- | -- | -- | -- | -- | -- | 57 | 271 |
| Korea, Republic of | -- | -- | -- | -- | -- | -- | 39 | 43 |
| Malaysia | -- | -- | -- | -- | -- | -- | 2 | 2 |
| Mexico | -- | -- | -- | 22 | 45 | 96 | 16 | 121 |
| Netherlands | 529 | 3,040 | -- | -- | -- | 11 | -- | -- |
| Norway | 110 | 219 | -- | -- | -- | -- | -- | -- |
| Poland | 70 | 283 | -- | -- | -- | -- | -- | -- |
| Russia | -- | 21 | -- | -- | -- | -- | -- | -- |
| Sweden | 21 | 181 | -- | -- | -- | -- | -- | 63 |
| Switzerland | 35 | 35 | -- | -- | -- | -- | -- | -- |
| Trinidad and Tobago | -- | -- | 1 | 1 | -- | 38 | -- | -- |
| United Kingdom | -- | 98 | -- | -- | -- | -- | -- | 1 |
| Venezuela | -- | -- | 390 | 390 | -- | -- | -- | -- |
| Total | 1,470 | 31,500 | 760 | 2,170 | 73 | 180 | 207 | 1,030 |

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes manganese-aluminum, some other alloys, and waste and scrap.

³Less than 1/2 unit.

Note: Exports of ferromanganese with more than 2% carbon totaled 556 tons, all of which went to Canada, to give a year-to-date total of 670 tons.

Source: U.S. Census Bureau.

TABLE 8
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS IN APRIL 2004, BY CLAS:¹

| Class | Gross weight (metric tons) | Value ² (thousands) | Principal sources and destinations: gross weight (metric tons); value ² (thousands) | Year to date | | |
|---|-------------------------------|-----------------------------------|---|-------------------------------|-----------------------------------|---|
| | | | | Gross weight (metric tons) | Value ² (thousands) | Principal sources and destinations: gross weight (metric tons); value ² (thousands) |
| Imports for consumption: | | | | | | |
| Manganese oxides other than dioxide | 123 | \$199 | South Africa 72; \$100 | 832 | \$829 | Mexico 457; \$187 |
| Sulfates, basket category, including manganese sulfate | 3,190 | 1,970 | Mexico 2,040; \$1,000 | 13,300 | 6,860 | China 6,840; \$2,660 |
| Potassium permanganate | 85 | 162 | Czech Republic 85; \$162 | 338 | 646 | Czech Republic 284; \$540 |
| Manganites, manganates, and other permanganates | 16 | 8 | China 16; \$8 | 290 | 454 | China 290; \$454 |
| Exports: | | | | | | |
| Manganese dioxide | 269 | 318 | Canada 111; \$38 | 1,170 | 1,160 | Canada 535; \$212 |
| Manganese oxides other than dioxide | 417 | 238 | Canada 220; \$91 | 1,660 | 1,470 | Canada 936; \$381 |
| Sulfates, basket category, including manganese sulfate | 1,510 | 1,050 | Canada 1,330; \$528 | 6,020 | 3,540 | Canada 5,150; \$1,800 |
| Potassium permanganate | 240 | 410 | Spain 186; \$316 | 1,000 | 1,520 | Spain 704; \$1,120 |
| Manganites, manganates, and other permanganates | 65 | 282 | Japan 35; \$155 | 213 | 906 | Japan 122; \$535 |

¹Data are rounded to no more than three significant digits.

²For imports, Customs value; for exports, free-alongside-ship value.

Source: U.S. Census Bureau.